



Fact Sheet

California Environmental Protection Agency

 **Air Resources Board**

Alternate Fuel Vehicles

An Alternate Fuel Vehicle (AFV) is a vehicle that can operate on a fuel other than gasoline or petroleum based diesel, such as biologically produced diesel (biodiesel) electricity, ethanol, hydrogen, methanol, natural gas, or propane. Alt Fuel vehicles range in function and size from small passenger cars to large 18-wheeler trucks or transit buses. Off-road products such as forklifts, and agricultural and construction equipment are also available with alt fuel systems.

Environmental Benefits

AFV's produce fewer emissions than those powered by gasoline or diesel fuel. Emission reductions of up to 80 percent for pollutants such as carbon monoxide, carbon dioxide, non-methane organic gas, oxides of nitrogen, or particulate matter can be achieved. The amount of emission reductions varies by alt fuel type and pollutant.

Perks and Conveniences

Using alternative fuels helps reduce the nation's dependence on imported oil. Alt Fuels can be derived from renewable biological feedstock or are a by-product of petroleum production. For example ethanol can be fermented from corn or wood waste, while natural gas or propane is produced in conjunction with crude oil production. Some alt fuels can also reduce vehicle maintenance requirements. For example, spark plugs from a propane-fueled vehicle last from 80,000 to 100,000 miles and engines can last 2 to 3 times longer than gasoline- or diesel-fueled engines.

Refueling

Depending on the fuel, a vehicle may be configured with either dedicated or bi-fuel systems. Vehicles with dedicated systems are designed to run exclusively on a particular alt fuel while bi-fuel vehicles have two separate fueling systems that can operate on either the alternative or conventional fuel. Different alt fuels are dominant in different regions of the country. Propane is the most widely available, with stations in every state, while ethanol blends are concentrated in the Midwest and plains states. Generally refueling times are comparable with those needed for gasoline or diesel refueling.

Technology

Alt fuel vehicle availability varies by fuel type. Currently light duty vehicles capable of using compressed natural gas (CNG), ethanol, and blended biodiesel are in production. Various heavy-duty vehicles using CNG, liquefied natural gas, propane, or biodiesel are available. Alt fuel conversion kits are available for Propane. The majority of propane-fueled vehicles are the result of aftermarket conversion.



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Safety

Alt fuel vehicles meet federal motor vehicle safety requirements. The pressurized containers of fuels such as liquefied propane and compressed natural gas go through rigorous safety testing.

Web sites with additional information:

- Alternative Fuel Data Center: www.afdc.doe.gov
- Clean Cities: www.cities.doe.gov
- Office of the National BioDiesel Board: www.biodiesel.org
- Renewable Fuels Associations: www.ethanolrfa.org
- American Hydrogen Association: www.clean-air.org
- Methanol Institute: www.methanol.org
- Natural Gas Vehicle Coalition: www.ngvc.org/ngv/ngvc.nsf
- Propane Education and Research Council: www.propanecouncil.org

Where can I get more information?

Please contact the ARB toll-free at (800) END-SMOG/(800) 363-7664 (California only) or (800) 272-4572. You may obtain this document in an alternative format by contacting ARB's Americans with Disabilities Act Coordinator at (916) 322-4505 (voice); (916) 324-9531 (TDD, Sacramento only); or (800) 700-8326 (TDD, outside Sacramento).